

DOCUMENT RESUME

ED 234 760

IR 010 827

TITLE A Summary of Research on Potential Educational Markets for Videodisc Programming.
 INSTITUTION Nebraska Univ., Lincoln.
 SPONS AGENCY Corporation for Public Broadcasting, Washington, D.C.
 REPORT NO CPB-TR-8003
 PUB DATE [79]
 NOTE 19p.
 PUB TYPE Viewpoints (120) -- Reports - Descriptive (141)
 EDRS PRICE MF01/PC01 Plus Postage.
 DESCRIPTORS Adult Education; Attitudes; *Audiovisual Aids; Elementary Secondary Education; *Expenditures; Higher Education; Input Output Devices; Instructional Materials; Marketing; *Public Television; Use Studies; *Videodisc Recordings; *Video Equipment
 IDENTIFIERS *Market Research

ABSTRACT

This project paper summarizes two previous market research reports, both Phase I task reports submitted to the Nebraska Educational Television Network: "Potential Educational Markets for Videodisc Programming" (January 1979) and "Potential Educational Markets for Videodisc Programming: Report on Three Focus Groups" (September 1979). The summary of the first report focuses on (1) expenditures for audiovisual media and video hardware and software; (2) software and hardware markets; (3) the projected growth of educational market segments and associated audiovisual expenditures; (4) adult education; (5) subject or course-related segments that can serve as an indicator of potential demand for specific types of videodisc programs; and (6) the implications of the findings for a public television licensee. The remainder of the document discusses results of the second report, in which three focus groups were conducted with the audiovisual media directors from secondary schools, college professors of business administration, and providers of computer assisted instruction, to discuss videodisc applications in education. Specific topics addressed include the how and why of focus groups, current uses of audiovisual media, barriers to the use of audiovisual media, and reactions to videodisc technology. Recommendations are included. (LMM)

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A Summary of Research
on Potential Educational Markets
for Videodisc Programming

CPB Technical Report #8003

by

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TABLE OF CONTENTS

INTRODUCTION	1
POTENTIAL EDUCATIONAL MARKETS FOR VIDEODISC PROGRAMMING	1
Audiovisual Expenditures	2
Software Markets	3
Hardware Markets	4
Market Growth Trends	4
Adult Education	6
Subject Segments	6
Implications for a Public Television Licensee	7
POTENTIAL EDUCATIONAL MARKETS FOR VIDEODISC PROGRAMMING: REPORT ON THREE FOCUS GROUPS	9
The Why and How of Focus Groups	9
Current Uses of Audiovisual Media	10
Barriers to the Use of Audiovisual Media	12
Reactions to Videodisc Technology	13
Recommendations	13
OTHER MARKET RESEARCH REPORTS BY KALBA BOWEN ASSOCIATES	15
THE NEBRASKA ETV NETWORK/UNIVERSITY OF NEBRASKA-LINCOLN PROJECT	15

A SUMMARY OF RESEARCH ON
POTENTIAL EDUCATIONAL MARKETS
FOR VIDEODISC PROGRAMMING

INTRODUCTION

One of the assignments undertaken by Station KUON-TV and the Nebraska Educational Television Network (NETV) as part of its multiple-year investigation of the potential of videodisc technology on behalf of the American public and instructional television is that of market research. As part of this investigation, with support from the Corporation for Public Broadcasting (CPB), NETV commissioned Kalba Bowen Associates, Inc., a Cambridge, Massachusetts, communications research firm, to investigate the potential educational markets for videodisc programming. Kalba Bowen prepared two reports on the subject.

Potential Educational Markets for Videodisc Programming, a Phase I Task Report, was submitted to NETV in January 1979. Potential Educational Markets for Videodisc Programming: Report on Three Focus Groups, a Phase I Extension Task Report, was submitted in September 1979. This project paper summarizes these two market research reports.

POTENTIAL EDUCATIONAL MARKETS FOR VIDEODISC PROGRAMMING

Using data collected by government agencies and private sources since 1970 concerning audiovisual media in primary and secondary schools, two-year and/or four-year colleges, and adult education programs, Kalba Bowen focused on the following factors:

- 1) current expenditures for audiovisual media and video software and hardware;
- 2) the distribution of video-related equipment which may be required for videodisc use or which may provide an alternative program delivery mode;
- 3) the way audiovisual expenditures are made in various segments and the propensity to adopt innovative technologies;
- 4) the projected growth of educational market segments and associated audiovisual expenditures;
- 5) the size of specific subject- or course-related segments, which can serve as an indicator of potential demand for specific types of videodisc programs;
- 6) current patterns of video use, which may indicate the applicability of special features of videodisc technology to educational needs.

The January report does not cover consumer-oriented educational programming for home use, nor does it examine the educational market for computer-assisted instruction (CAI). It does not attempt to project the size of the educational videodisc market.

Audiovisual Expenditures

Numerically the largest market for audiovisual software, hardware, and operations, public schools spent \$1.26 billion in 1974-75. Four-year colleges spent \$251 million; two-year colleges, \$76 million; and private schools, \$50 million. Expenditures per student ranged from a high of \$36.24 for four-year colleges to \$27.90 for public schools to \$25.51 for private schools to a low of \$21.51 for two-year colleges. Though four-year colleges spend more per student, their audiovisual (AV) expenditures average only about .8% of total educational expenditures as compared to about 1% for private schools and 2% for public schools. Per institution, four-year colleges averaged \$143,651 for AV

in 1974-75 as compared to \$14,170 per public school. These figures suggest that initially four-year colleges may be more likely to invest in new products, while in the long run, the public schools may be potentially the largest market.

Software Markets

As to software, the public schools spend about four times as much as the four-year colleges (\$427 million and \$114 million respectively). Public schools spend \$54 million on film rentals and \$282 million on new materials. Videodisc software would fall into the latter category. Four-year colleges spend \$20 million on film rental and \$42 million on new materials. Colleges spend more than twice as much of their AV software budgets on in-house productions as public schools do.

A 1977 survey indicates that 58.4% of software sales are to grades K-8, 27.2% to grades 9-12, and 9.4% to postsecondary grades. These percentages suggest that primary schools offer the greatest sales potential. But decision-making authority for software purchases in public schools is dispersed among teachers, supervisors, and librarians, whereas individual college faculty members are likely to make such decisions. The cumulative purchasing power of faculty members of the average four-year college (\$65,426 as compared to \$4,821 per public school) and the greater concentration of buyers in one location make the college market more attractive than the public school market. In addition, videodisc software could compete for a share of the \$25 million per year that colleges spend for film rental (currently \$25-\$35 per week for one-hour color films). Videodisc, because of the

cost of the mastering process, would compete less successfully for the \$56 million that colleges spend for in-house production and distribution.

Hardware Markets

The market for videodisc hardware will be affected by the following factors:

- 1) Institutions with the largest discretionary budgets may be more likely to invest initially in videodisc players.
- 2) Hardware already in place may affect an institution's propensity to invest in a new system.
- 3) Availability of videodisc software may affect the willingness of institutions to purchase videodisc hardware.

Per institution, four-year colleges expended \$25,709 on AV hardware in 1974-75 as compared to \$2,192 per public school, a large enough difference to suggest that in spite of a comparatively larger expenditure for production equipment, colleges may adopt videodisc players more readily than public schools. Ninety-two percent of colleges have videotape recorders; only 40% of public schools have them. That colleges also generally average more VTR, VCR, and TV receivers than do public schools suggests that colleges are more likely to invest in innovative technologies. The availability of color TV sets in public schools may affect faculty and student interest in videodisc hardware.

Market Growth Trends

Enrollment statistics show that though the primary/secondary schools have declined or grown comparatively little between 1965 and 1975 (3-4%), higher education enrollments have increased 89%. Two-year colleges have increased 230% in enrollments, non-degree credit

programs 268%, and part-time college enrollments 136%. Projections indicate substantial growth for higher education overall between 1975 and 1985, averaging 19% and ranging from 41% to 62% for some subsegments. The predicted decrease in primary/secondary enrollments by 1985 is 8%. By 1985 college enrollments will exceed high school enrollments. Accompanying shifts in the supply of and demand for instructional staff will affect the success of videodisc. The 8% projected decrease in the K-12 enrollments is accompanied by a projected increase of only 1% in the supply of teachers. The 19% projected increase in higher education enrollments will exceed the projected 4% increase in faculty. Budgetary constraints and diminishing discretionary funds may limit the willingness of administrators to adopt new technologies. Increased work-loads for teachers, accompanied by a decrease in demand for teachers, may result in two reactions to AV aids: Teachers competing for a limited number of positions may regard new technologies as teacher substitutes. Or teachers may regard them as aids to meeting pressing instructional needs. Though no data are available on anticipated college AV or ITV expenditures, a survey of school superintendents shows that in 1976-77, 32% planned no expansion of ITV equipment over the next three years; 46% planned to purchase additional TV sets; 47% planned to add videotape equipment; 31% expected to purchase color TV to replace black and white; and 20% planned to add production equipment and/or internal distribution systems.

Adult Education

The increase in the older population (ages 25-34) is accompanied by a rapid increase in the demand for adult education. From 1969 through 1975, the numbers rose from 13,041,000 to 17,059,000 (about 31%). Adult learners are often career- or job-oriented part-time students whose job and/or family responsibilities demand inexpensive, flexible programs. Continuing education provides opportunity for social interaction and personal satisfaction as well as meeting career goals. A large and growing, though diverse and fragmented group, adult learners constitute a market difficult to reach. On the other hand, they may welcome the capabilities of videodisc for self-paced, flexible scheduled learning. If videodisc satisfied entertainment or leisure needs as well as educational needs, these adult learners may eventually invest in videodiscs and players. A likelier alternative is to make videodisc players available to them on a lending or leasing basis.

Subject Segments

Videodiscs must ultimately be sold to individual buyers interested in materials related to particular courses. Available data suggest that at the high school level, English, U.S. history, art, general math, and biology are numerically the best prospects for videodisc marketing. At the college level, introductory courses in education, social sciences, business, and possibly English, biology or psychology are most popular. With the exception of biology, enrollments in these disciplines are declining. Less traditional fields such as the health

professions, public affairs, and communications pose interesting challenges to videodisc treatment in the next three or four years.

At present, the secondary schools appear to be the largest market both numerically and as to subject or course options, since they offer fewer subjects than colleges do. Availability of well produced and marketed programming to serve a given subject segment will undoubtedly affect the size of the potential secondary-school market for videodisc. A possibility that must be taken into account is that the currency and quality of existing programming may serve the demand of a given subject adequately. Available data indicate that business and psychology are the subjects that use the largest number of 16mm films and thus might be interested in videodiscs that depend upon the use of existing programming. Other subject fields may find new productions attractive, inasmuch as no field seems to be saturated with existing AV software.

Implications for a Public Television Licensee

Arguments for developing videodisc software for colleges include the following:

- 1) Per institution, per faculty, and per student, colleges spend more on AV materials than primary/secondary schools do. (Kalba Bowen's September report supports this argument.)
- 2) Consequently, the per-unit cost of marketing videodisc software for colleges will be lower.
- 3) In the short term, the greater concentration of resources and a greater propensity to innovate make colleges more likely to introduce videodisc hardware. (Kalba Bowen's September report also supports this argument.)
- 4) Except for adult education, the college market will grow more from 1978 to 1985 than other school markets.

- 5) The slower growth in college faculties as compared to student enrollments may increase the need for instructional technology.

Arguments for focusing on primary/secondary school markets are as follows:

- 1) The total AV expenditure is five times the total college expenditure.
- 2) Schools seem more willing than colleges to spend their AV software budgets on externally generated programming. (Kalba Bowen's September report does not firmly support this argument.)
- 3) The possibility of district-wide purchase of video hardware and software makes schools an attractive market.
- 4) Schools constitute a large potential market for video programming for specific courses or subjects. (This argument grows out of Kalba Bowen's understanding of the Back-to-Basics movement, which it interprets as a demand for standardization of textbooks and an emphasis on fundamentals. "Basics," "standardization," and "fundamentals" are not defined.)

In conclusion, a public television licensee should consider both of the foregoing markets, setting some short-term and long-run priorities. Considering the licensee's resources and those of related institutions, a licensee should try to determine which market it could best serve in the short term. In spite of a decrease in enrollments, the primary/secondary schools constitute the largest potential market for videodisc programming in the long run. Assessing the AV procurement practices and course-related needs of two or three market segments would help a licensee identify specific marketing opportunities. Research should be undertaken to determine the competitive factors and take them into account in developing a market strategy. A modest demonstration project in a familiar setting would yield needed information about the adult education market.

POTENTIAL EDUCATIONAL MARKETS FOR VIDEODISC PROGRAMMING:
REPORTS ON THREE FOCUS GROUPS

The goal of Kalba Bowen's second market research report was to help a public television licensee identify specific marketing opportunities by assessing the audiovisual (AV) procurement practices and course-related needs of two or three market segments or subsegments as recommended in the January 1979 report. In carrying out the recommendation, the KBA/NETV staff conducted focus group sessions with

- 1) AV media directors from secondary schools. Both as to total enrollments and total expenditures, secondary schools form the largest potential videodisc market.
- 2) College professors of business administration. Research indicates that by 1985-86, graduates in business/management will outnumber those in any other field.
- 3) Providers of computer-assisted instruction (CAI). MCA and IBM's recent formation of DiscoVision Associates is one of several indications that CAI warrants closer attention.

The Why and How of Focus Groups

The desirability of comprehensive demonstration of the videodisc and videodisc player was perhaps the best reason for choosing focus groups as a research tool. A nationwide mail or telephone survey would have required more time and financial resources than were available. The necessity of doing the research during the late spring and early summer (vacation time) precluded the choice of a larger number of contacts. Convinced that the focus groups would yield as valid information as a large-scale survey, Kalba Bowen obtained names of possible participants from such sources as the membership list of a regional AV directors' discussion group and phone conversations with deans of

business administration departments and colleges. Each meeting consisted of 1) an hour's demonstration of a videodisc player, followed by questions from participants and 2) two hours' discussion of the participants' current uses of AV media and their reactions to the videodisc's capabilities.

The AV directors represented seven schools or school districts with enrollments ranging from 1,500 to 12,000 and faculties numbering from 150 to 600. The six "professors of business administration" represented the management department of a small private college, the economics and liberal arts departments of a small private business college, the education department of a private business college, and the MBA and executive MBA programs of a large private university. The six CAI providers were 1) a member of an information network serving more than 150 libraries, 2) a systems analyst for the library network, 3) a director of a museum's computer center, 4) an officer of a 30-school association for sharing computer resources in New England, 5) an administrator of a public school system's computer center and 6) a university professor involved in introducing CAI at his institution.

Current Uses of Audiovisual Media

Audiovisual media directors from secondary schools are increasingly using videocassette and tape recorders, though they report that "most teachers. . .rely primarily on rented or purchased 16mm film . . .to supplement lecture materials." One school rented feature films for a weekly cultural enrichment program. "Vidotape. . .is used primarily for local, in-house productions" using student talent to

simulate newscasts or create how-to programs, or to produce edited versions of TV broadcasts. Five of the school systems owned 2-7 video cassette recorders (VCRs); all owned 3-15 videotape recorders (VTRs). Opinion varied as to the effect of technological advances on use and purchase of AV media, but concern about it had delayed purchase of 1/2" VTRs until recently. One director reported that the development of 4- and 6-hour players had made his 2-hour VCRs practically obsolete. On the other hand, another believed that Time-Life's use of the 1/2" VCRs for its film library indicated that format's durability. Only one district used a CAI system, part of a much larger multipurpose computer system. Participants reported that English, social studies, and science departments used the largest number of rented or purchased films. One director reported increased use of radio because "we're getting kind of tired of AV materials." Reduced staff and, consequently, reduced offerings also had decreased AV use. On the other hand, one director asserted that her school system was "hesitatingly" moving toward more individualized CAI instruction: "Our goal is to have one terminal and microcomputer for every hundred students."

Members of the business administration group used AV media for classroom instruction as follows:

- 1) films on office environment to develop students' awareness of management decision-making;
- 2) videotapes or films of popular movies to examine interpersonal or organizational conflicts;
- 3) videotapes of students' role-playing in job interview situations.

None of the group used AV media for non-classroom instruction. Most films were rented or purchased. Nearly all of the videotapes were produced in-house. Immediate feedback in role-playing situations was regarded as an important advantage of videotape.

The discussion with CAI providers dealt with demonstration and discussion of level-three applications of videodisc with a group familiar with CAI. An MCA Model 700 educational/industrial player was interfaced with a Radio Shack TRS-80.

Barriers to the Use of Audiovisual Media

Perhaps the chief barrier to greater use of audiovisual (AV) media was the difficulty of persuading local school committees to invest in hardware, even though software and supplies budgets were "fairly well funded" and there was little or no objection to \$300 or \$400 for film rental. AV directors felt that teachers were often ill at ease with AV technology and used AV aids less if they had broken down during use or were not readily available when needed. Directors themselves expressed concern about lack of hardware compatibility and too-rapid technological change. College faculty in business administration expressed similar reservations about the use of AV media.

The three groups identified what they considered the disadvantages of videodisc technology:

- 1) high cost of the player;
- 2) difficulty of moving the equipment;
- 3) faculty members' lack of technological know-how;

- 4) lack of production control of disc content;
- 5) use of multiple choice in branching strategies;
- 6) possible incompatibility of models or interfaces;
- 7) lack of abundant videodiscs, especially for interactive use;
- 8) lack of instant playback (of student performance, for example);
- 9) high cost of producing and pre-programming discs;
- 10) a current preference for student interaction as opposed to individualized instruction.

Reactions to Videodisc Technology

After watching a demonstration of videodisc technology, all three focus groups were impressed by the videodisc player's capabilities:

- 1) ease and simplicity of use;
- 2) quality of picture and sound;
- 3) lack of wear and tear on software, and software durability;
- 4) random access capabilities;
- 5) cost effectiveness of videodisc software as compared to film rental costs.

The college business administration professors felt that random access, instant replay, and stop action provided the "editability" that users claim for videotape.

Recommendations

AV directors recommended that the most suitable programming for disc productions be determined by examining state curriculum guides and school catalogs, by having teachers recommend desired materials to department chairpersons, and by having chairpersons and AV directors

jointly make purchasing decisions. Introduction of videodisc to schools might be easier via sale of players to municipal organizations for training purposes before attempting to sell them to schools. To offset the cost of players, one director suggested a bonus for the purchase of a number of discs or a "package" of discs. A rent-to-own strategy was suggested as a means of persuading school committees to invest in videodisc hardware.

The business administration group saw four possible applications for videodisc technology:

- 1) lessons controlled by the teacher to supplement lectures. A disc with several short how-to sequences showing processes which could not be otherwise easily observed was suggested as an alternative to more structured, longer lessons.
- 2) anthologies or references supplementary to reading assignments;
- 3) situational or behavioral material using dual mode audio channels to stimulate student discussions;
- 4) personal lecture materials. A disc might be designed to contain a teacher's "standard repertoire" from which he/she could choose or recombine parts appropriate to a given group or classroom situation.

One CAI provider recommended that sales efforts be focused on the home market. He believed that much existing tape material should be quickly transferred to discs. Teachers could provide the interactive element (as they do now). Given availability of a large number of discs and their durability, quality, low cost, and "editability," school systems might be induced to invest in players. "Then interactive courseware could be added as it was developed."

OTHER MARKET RESEARCH REPORTS BY KALBA BOWEN ASSOCIATES

In addition to completing the previous reports on potential educational markets, Kalba Bowen Associates has conducted research and submitted reports to NETV on two separate aspects of the home video market and on reproduction, distribution, and utilization costs for programmable videodisc technology. The reports on the home video market were prepared as part of a special proprietary study, thus are unavailable for general distribution. However, the report on reproduction, distribution and utilization costs is not under this sanction. Further information about market research on videodisc technology may be obtained by writing to the Videodisc Design/Production Group, P.O. Box 83111, Lincoln, Nebraska 68501.

THE NEBRASKA ETV NETWORK/UNIVERSITY OF NEBRASKA-LINCOLN PROJECT

Under a CPB grant, conferred in 1978, KUON-TV/University of Nebraska Television was designated to conduct a multiple-year investigation into the potentials of videodisc technology for instructional and public television on behalf of all public broadcasting.

The project is developing special design and production techniques which take advantage of the unique instructional characteristics of the videodisc and videodisc player and producing pilot videodiscs to demonstrate the instructional advantages of the new technology. The pilot videodiscs are geared to specific target audiences, such as elementary, secondary and college users, in relation to the functional capabilities of the videodisc, including freeze frame and random access.

The project also is conducting market research into future needs and uses of the videodisc by American education and public television, and disseminating project findings to educators and public broadcasters.

A parallel CPB-supported investigation, also begun in 1978, has been exploring potential applications of videodisc technology to instructional programming for the hearing impaired. This investigation is being conducted in cooperation with the University of Nebraska-Lincoln Barkley Memorial Center, which, through its Media Development Project for the Hearing Impaired, is developing television instruction under funding from the U.S. Department of Health, Education and Welfare's Bureau of Education for the Handicapped.

DiscoVision Associates of Los Angeles, a leading developer of videodisc equipment, has been cooperating in the videodisc investigations along with three Lincoln-based organizations: The Great Plains National Instructional Television Library, the University of Mid-America, and NETCHE, Inc. A 20-member national videodisc planning advisory committee was named in January 1979 to assist KUON-TV and the University of Nebraska in carrying out the investigation and production stages.

A Videodisc Design/Production Group has been established by University of Nebraska Television, one of the first in the nation, whose experience and expertise will be available to a number of agencies and organizations in the future.